



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁶ : C07D 309/32, 405/12, C07C 49/255, 49/577, 49/83, 205/45, 69/734, 69/732, 69/738, 381/04, A61K 31/35	A3	(11) International Publication Number: WO 98/19997 (43) International Publication Date: 14 May 1998 (14.05.98)
(21) International Application Number: PCT/US97/19853 (22) International Filing Date: 31 October 1997 (31.10.97) (30) Priority Data: 60/029,906 1 November 1996 (01.11.96) US 08/883,743 27 June 1997 (27.06.97) US (71) Applicant (for all designated States except US): WARNER-LAMBERT COMPANY [US/US]; 201 Tabor Road, Morris Plains, NJ 07950 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): BOYER, Frederick, Earl, Jr. [US/US]; 1624 Ironwood Drive, Canton Township, MI 48188 (US). DOMAGALA, John, Michael [US/US]; 47693 Red Run, Canton, MI 48187 (US). ELLSWORTH, Edmund, Lee [US/US]; 6899 Kestrel Court, Brighton, MI 48116 (US). GAJDA, Christopher, Andrew [CA/US]; 2684 Bellwood, Ann Arbor, MI 48104 (US). HAGEN, Susan, Elizabeth [US/US]; 1035 Paddington Road, Canton Township, MI 48187 (US). HAMILTON, Harriet, Wall [US/US]; 204 Jef- ferson Street, Chelsea, MI 48118 (US). MARKOSKI, Larry, James [US/US]; Apartment 2A, 4920 Lakeridge Drive, Yp- silanti, MI 48197 (US). PRASAD, Josyula, Venkata, Nagen- dra, Vara [IN/US]; 3129 Fawnmeadow Court, Ann Arbor,		MI 48105 (US). TAIT, Bradle, Dean [US/US]; 8431 Con- gress Drive, Canton, MI 48187 (US). LUNNEY, Elizabeth, Ann [US/US]; 619 Ridgewood Court, Ann Arbor, MI 48103 (US). (74) Agents: RYAN, M. Andrea; Warner-Lambert Company, 201 Tabor Road, Morris Plains, NJ 07950 (US) et al. (81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CZ, EE, GE, GH, HU, IL, IS, JP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims</i> <i>and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 27 August 1998 (27.08.98)
(54) Title: DIHYDROPYRONES WITH IMPROVED ANTIVIRAL ACTIVITY		
(57) Abstract This invention pertains to improved antiviral activity of 6,6-disubstituted-5,6-dihydropyran-2-ones caused by judicious placement of certain polar substituents at the 3 and/or 6 positions. The same substituents which enhance the cellular activity also diminish cytotoxicity further enhancing the desirable properties of these agents as antivirals.		



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/19853

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C07D309/32 C07D405/12 C07C49/255 C07C49/577 C07C49/83
 C07C205/45 C07C69/734 C07C69/732 C07C69/738 C07C381/04
 A61K31/35

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C07D A61K C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHEMICAL ABSTRACTS, vol. 125, no. 23, 1996 Columbus, Ohio, US; abstract no. 295892r, P. TUMMINO ET AL.: "discovery a. optimization of non-peptide hiv-1 protease inhibitors." page 459; XP002056515 see abstract	1, 2, 14, 16
X	& BIOORG. MED. CHEM., vol. 4, no. 9, 1996, USA, pages 1401-1410, ---	1, 2, 14, 16
X	WO 95 30670 A (UPJOHN) 16 November 1995 see page 88 - page 100; claims; example XXX1; table D1 --- -/-	1, 2, 14, 16, 20

☒ Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search

16 June 1998

Date of mailing of the international search report

30. 06. 98

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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X	WO 95 14012 A (PARKE DAVIS) 26 May 1995 cited in the application see claims; example 85 ----	1,2,14, 16,20
A	WO 95 14011 A (PARKE DAVIS) 26 May 1995 see claims 7-12 ----	1,2,14, 16
X	CHEMICAL ABSTRACTS, vol. 100, no. 12, 1984 Columbus, Ohio, US; abstract no. 94556u, page 570; column 1; XP002068172 see abstract & JP 57 167 296 A (RIOCH) 15 October 1982 ----	17
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Int'l Application No

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/ 19853

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claim(s) 22-26
is(are) directed to a method of treatment of the human/animal
body, the search has been carried out and based on the alleged
effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such
an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims 1-16, 20 (part.), 22-27
2. Claims 17
3. Claims 18 and 19
4. Claims 21

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all
searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment
of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report
covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/ 19853

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/19853

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International Application No

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